

INCIDENTAL CATCH OF MARINE MAMMALS AND SEABIRDS BY DOMESTIC
GROUND FISH VESSELS IN ALASKA (1978-1989)

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ABSTRACT

Data collected by ADF&G observers indicate that the incidental catch of marine mammals by domestic groundfish vessels has generally been low. Although yearly observer coverage from 1978 to 1989 was limited, total coverage aboard domestic vessels was as follows: bottom trawlers, 180 trips and 1,176 trawl hauls; midwater trawlers, 55 trips and 160 trawl hauls; longliners, 36 trips and 372 sets; pot vessels, 5 trips and 68 sets. All observed incidental mortalities (n=3 sea lions) occurred in 1980 aboard bottom trawlers when sea lions were frequent visitors to fishing boats. For 1988 and 1989, marine mammal sightings were also noted; six sea lions were reported. In more recent years, the domestic harvest of groundfish has increased greatly but observed mortalities of marine mammals has been nil.

INTRODUCTION

Populations of northern (Stellar) sea lions have declined throughout Alaska. The reasons for this are not clear but a source for potential marine mammal mortality may be as incidental catches by various gear types in the diverse fisheries occurring in the north Pacific Ocean and Bering Sea. In the groundfish fishery estimates of these incidental catches are well documented in the foreign fishery where Loughlin (1987), using data collected by on-board observers, estimated the average catches of sea lions by trawlers and longliners at 724 animals per year (1978-1981) with longliners accounting for only one or two of the total. In Shelikof Strait, the estimate of sea lion mortalities in midwater trawls ranged from 958-1,436 animals in 1982 and 216-355 from 1983 to 1984 (Loughlin and Nelson 1986).

Groundfish fisheries allocations have changed from that dominated by a foreign fleet, to that of an expanding catching and processing domestic fleet in accordance with the Magnuson Fishery and Conservation and Management Act. Potential mortalities of sea lions by the DAP (Domestic Annual Production) are of current interest because all of the Gulf and 90% of that of the Bering Sea/Aleutians catch will be caught and processed by domestic fishermen and processors in 1990.

Since 1978 the Alaska Department of Fish and Game (ADF&G) has operated a small program of observers aboard DAP vessels. Craig (1988) provided estimates of sea lion incidental catches from observations by Alaska Department of Fish and Game observers aboard domestic bottom trawlers, midwater trawlers, longliners, and pot vessels from November, 1978 to July, 1988. Sea lions were caught only on bottom trawlers; four were caught with three mortalities from 1,176 observed tows. The purpose of this report is to update the information provided by Craig (1988) by including additional observations from July 1988 to December 1989.

METHODS

ADF&G's observer program for the domestic fleet was similar to that of the National Marine Fisheries Service for the foreign fleet and the mandatory domestic observer program implemented by Federal regulations effective February 7, 1990, with two notable exceptions. The NMFS foreign observer programs were mandatory, and trips aboard foreign factory processors were generally longer (1-3 months). DAP vessels, in contrast, usually took short trips (1-5 days) and were not required to take observers aboard. Despite

the voluntary nature of the DAP observer program, we have no reason to suspect that the marine mammal data obtained on DAP vessels participating in the observer program differed from DAP boats that did not participate.

ADF&G has placed observers on domestic bottom trawlers since 1978 and more recently on midwater trawlers, longliners, and pot vessels. All vessel deliveries were shore-based for this report except for two factory trawler and six factory longline trips. The vessels observed were typically 60-120' in length but ranged from 45-150'. Fishing trips generally lasted 2-5 days but ranged from day trips to a few weeks. Most trips were taken on bottom trawlers near Kodiak Island and the southeastern Bering Sea near Unimak Pass (Table 1).

From 1978 to 1987 observers sampled virtually every trawl or set brought aboard. They recorded the incidental catch of prohibited species (salmon, crab, halibut) and subsampled the catch to determine species composition. Because incidental catches of marine mammals and seabirds were infrequent, we contacted the original observers to confirm whether they had actually recorded all occurrences of capture. In the case of a large marine mammal like a sea lion, it is a memorable occasion due to the confusion it creates on a small vessel. In this report, for years 1978 to 1987, we present only those data from this time period that were verified by the original observers. The verified data (which amounts to the data sets of 7 of the 14 observers employed) are then referred to as to total observer effort during this reporting period.

For the years 1988 and 1989, observers prepared a summary trip report noting number of marine mammals and seabirds incidentally killed or injured during fishing operations or while the crew was protecting life, catch or gear. Observers also noted number of marine mammals deterred from gear or catch, damaged or lost catch due to marine mammals, and number of marine mammals killed by other marine mammals. Other sighting and interactions with sea mammals were also recorded (Appendix 1).

RESULTS

ADF&G observer coverage was limited each year, generally amounting to less than 3% (by weight) of the bottom trawl fishery near Kodiak Island, and less than 1% of the various other segments of the domestic fishery. Therefore, estimating the total mortality of marine mammals for each separate year is not a particularly meaningful exercise. The combined sample size for the period 1978

Table 1. Observer sampling effort by area for domestic fishing vessels, 1978-1989.

Gear Type	Area	No. of Trips Observed	No. of Hauls/Sets Observed
Bottom Trawl	Central Gulf (mostly Kodiak area)	132	1177
	S. Bering Sea (mostly Unimak area)	44	536
	SE Alaska (inside waters)	3	17
	Aleutians (Seguam Pass)	1	11
Midwater Trawl	Central Gulf (Kodiak area)	49	143
	S. Bering Sea (Unimak area)	6	17
Longline	Central and Eastern Gulf (mostly Kodiak)	36	372
Pots	Central Gulf (Kodiak area)	5	68

to 1989, however, was considerably larger. Observer coverage for the DAP fishery from 1978 to 1989 amounted to 180 bottom trawl trips (1,741 hauls), 55 midwater trawl trips (160 hauls), 36 longline trips (372 sets), and 5 pot trips (68 sets) (Table 2).

The incidental catch of marine mammals by DAP vessels was generally low during the period of observer coverage. Only four sea lions were caught aboard bottom trawlers, one of which was released alive (Table 2). The average mortality rate was .02 marine mammals/vessel trip, .002 marine mammals/trawl haul, or .001 marine mammals/trawl hour.

All marine mammal catches occurred during a single year (1980) when sea lions were frequent visitors around trawlers. In subsequent years (1981-1989), no marine mammals were taken in observed harvests even though the observers' sampling effort was considerable, amounting to 87% of the total sampling effort for bottom trawls. Observed mortalities of marine mammals for gear types other than bottom trawls were also zero.

Since 1988 when observers routinely began recording sightings of marine mammals, four sea lions were encountered (two on one trip and one each on two other trips) as they ate fish discarded from the observed bottom trawl vessels. On one observed trip aboard a midwater trawl vessel, two sea lions ate holes in the net to reach the pollock within.

Seabirds were caught in the longline fishery, with an average catch rate of 0.4 seabirds/set. Five gulls and sixty-six fulmars were taken by three vessels during an offshore sablefish fishery. Three gulls were taken by one vessel targeting Pacific cod.

DISCUSSION

Although anecdotal accounts of marine mammal mortalities abound, our limited observations of DAP vessels in the groundfish fishery suggest that the catch of marine mammals has generally been low, for several reasons. In the year when the observed catch rate was the highest (1980), the DAP harvest was low (Figure 1). Also, Loughlin (1986) found that during the joint venture midwater pollock fishery most of the sea lions (66%) were caught between 2300 and 0300 h when the sea lions were apparently feeding. In contrast, most of our observations during the early 80's were made aboard DAP bottom trawlers targeting on Pacific cod that did not (for the most part) fish at night because the cod came off the bottom. In more recent years the DAP fishery has rapidly expanded, but observed catch rates of marine mammals have been nil.

Table 2. Incidental catch of marine mammals and seabirds by domestic fishing vessels as recorded by ADF&G on-board observers.

Gear Type	Year	No. of Trips Observed	No. of Hauls/ Sets Observed	Duration of Hauls/ Sets (hr) Observed	No. of Marine Mammals Caught	No. of Seabirds Caught
Bottom Trawl	1978	3	20	74	0	0
	1979	8	53	45	0	0
	1980	16	157	360	4 ^a	0
	1981	3	34	66	0	0
	1982	5	30	43	0	0
	1984	20	227	506	0	0
	1985	9	191	260	0	0
	1986	8	85	147	0	0
	1987	19	248	493	0	0
	1988	42	307	938	0	0
	<u>1989</u>	<u>47</u>	<u>389</u>	<u>808</u>	<u>0</u>	<u>0</u>
	Totals	180	1741	3740	4	0
Midwater Trawl	1987	9	39	135	0	0
	1988	23	53	237	0	0
	<u>1989</u>	<u>23</u>	<u>68</u>	<u>275</u>	<u>0</u>	<u>0</u>
	Totals	55	160	647	0	0
Longline	1984	2	39	534	0	0
	1986	3	23	106	0	0
	1987	6	51	730	0	64 ^b
	1988	5	37	447	0	0
	<u>1989</u>	<u>20</u>	<u>222</u>	<u>2472</u>	<u>0</u>	<u>10^c</u>
	Totals	36	372	4289	0	74
Pots	1987	3	39	3498	0	0
	1988	1	19	433	0	0
	<u>1989</u>	<u>1</u>	<u>10</u>	<u>466</u>	<u>0</u>	<u>0</u>
	Totals	5	68	4397	0	0

^a Stellar sea lions: 3 dead, 1 released alive.

^b Fulmars: all dead.

^c Seagulls: 8 dead, Fulmars: 2 dead.

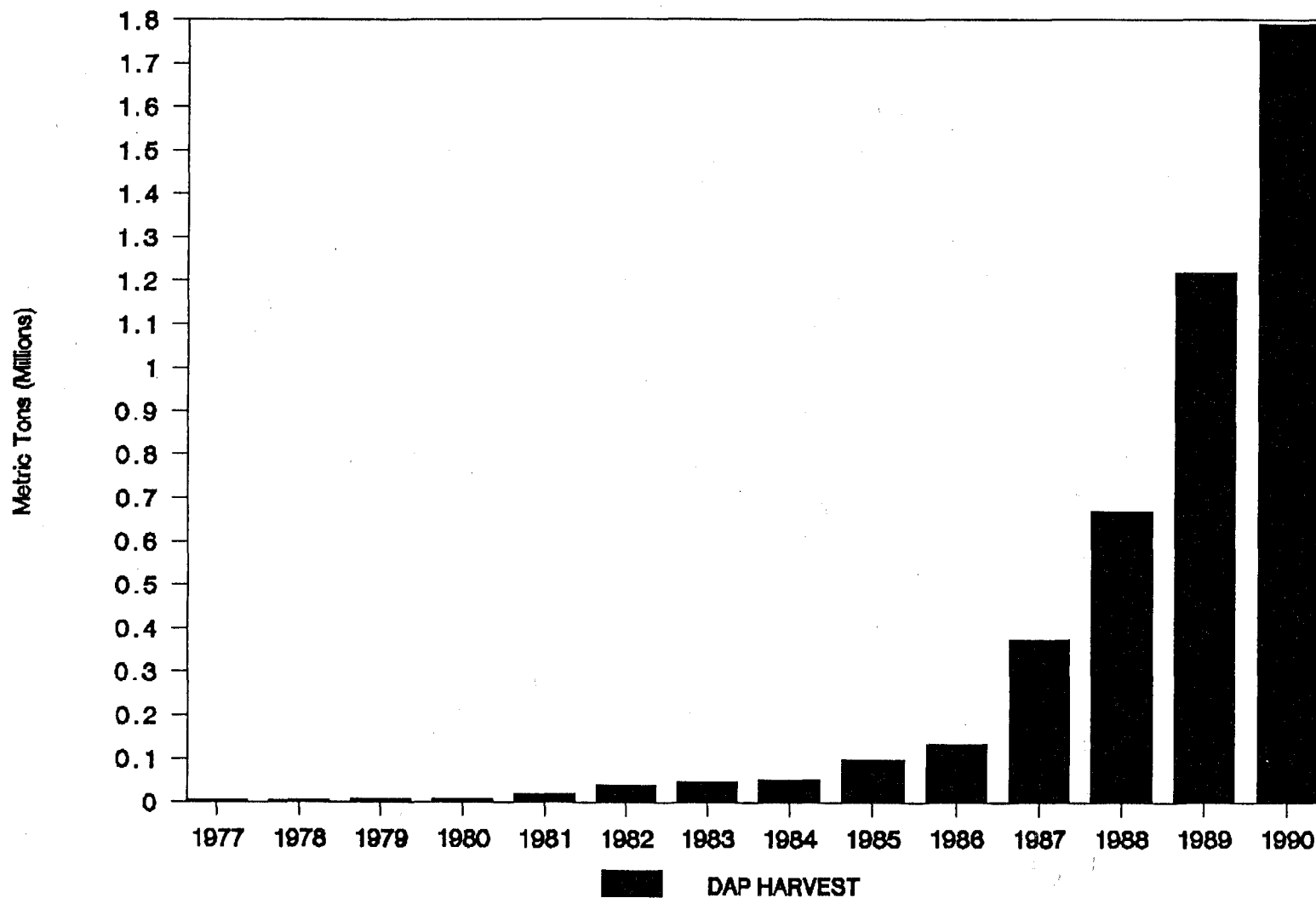


Figure 1. Yearly increases in the domestic harvest of groundfish in Alaska (DAP, Gulf of Alaska and Bering Sea). Although this figure represents the catch by all gear types, the bulk of the 1990 quota will be taken by midwater trawlers targeting pollock. (Source: PacFIN).

LITERATURE CITED

- Craig, Peter. 1988. Incidental catch of marine mammals and seabirds by domestic groundfish vessels in Alaska. Regional Information Report No. 4K88-33
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Appendix 1. Alaska Department of Fish and Game marine mammal and seabird observer form.

ADF&G OBSERVER REPORT: MARINE MAMMALS AND SEABIRDS

Trip no. _____ Observer _____

Trip dates: start _____ end _____

Gear type _____

Total no. of trawls/sets observed _____

INTERACTIONS BETWEEN MARINE MAMMALS AND FISHING OPERATIONS:

None _____ If yes, describe species and event _____

SUMMARY:

1. No. marine mammals or seabirds incidentally killed during fishing (by species):
2. No. marine mammals lethally removed to protect life, gear, or catch (by species):
3. No. marine mammals or seabirds injured and nature of injury (by species):
4. No. marine mammals deterred from gear or catch (by spp.):
5. Damage to gear or loss of catch to marine mammals:
6. Marine mammals observed killed by other marine mammals (by species):

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